

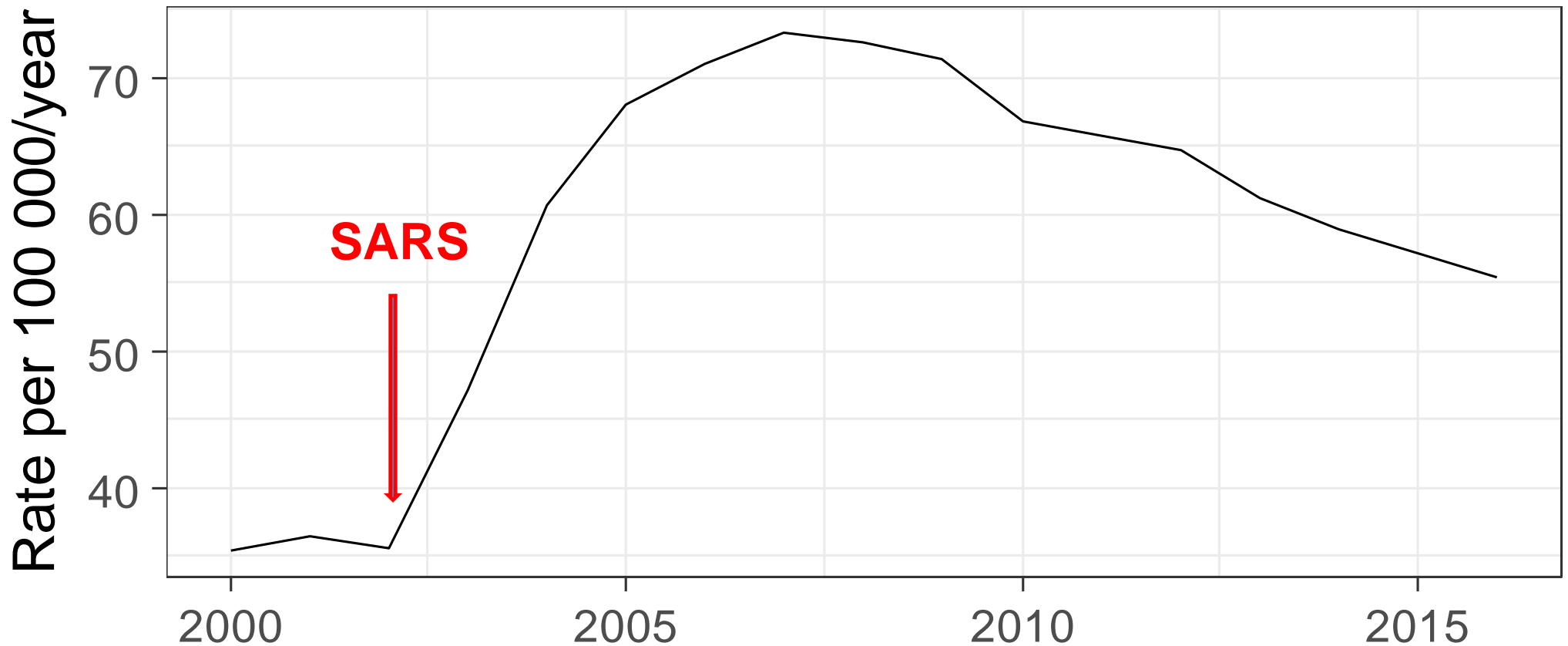
TB data gaps

Philippe Glaziou
Glion, Sept 2017

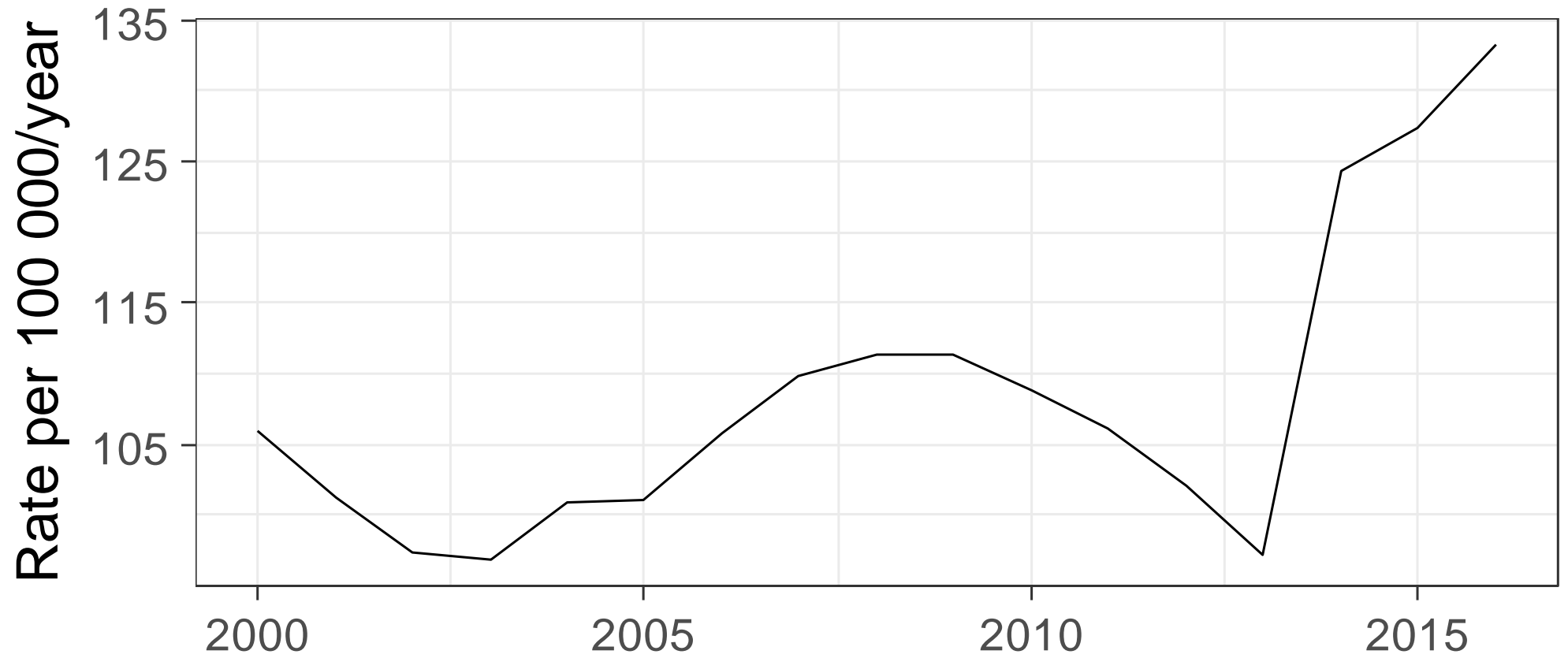
What do we know about TB incidence?

- What is a TB case?
 - 50% of reported cases globally are unconfirmed
- Coverage of case notifications
 - Reported / Detected
 - Reported / Incident

Case notifications in China after SARS



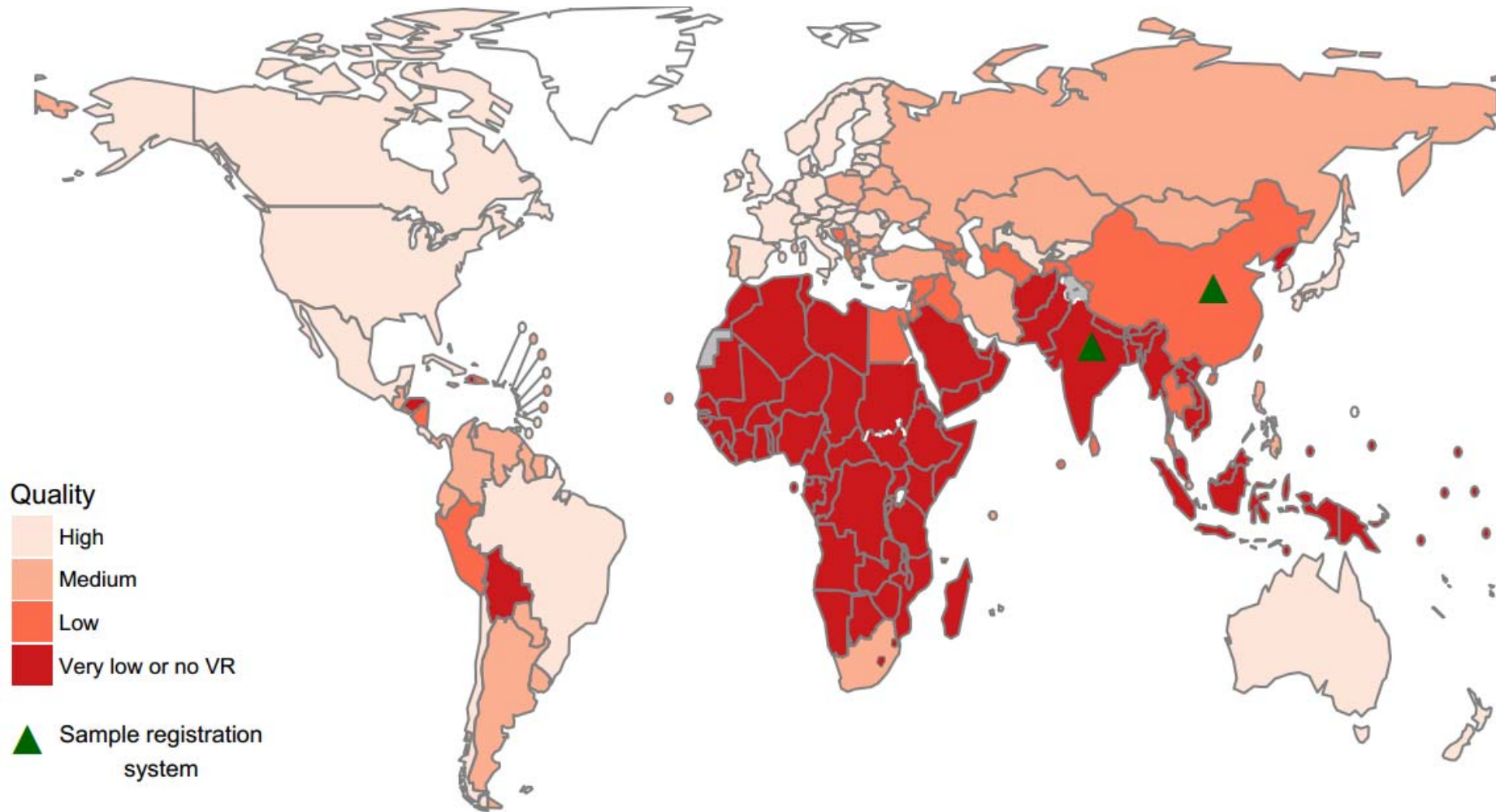
Case notifications in India



What do we know about TB incidence?

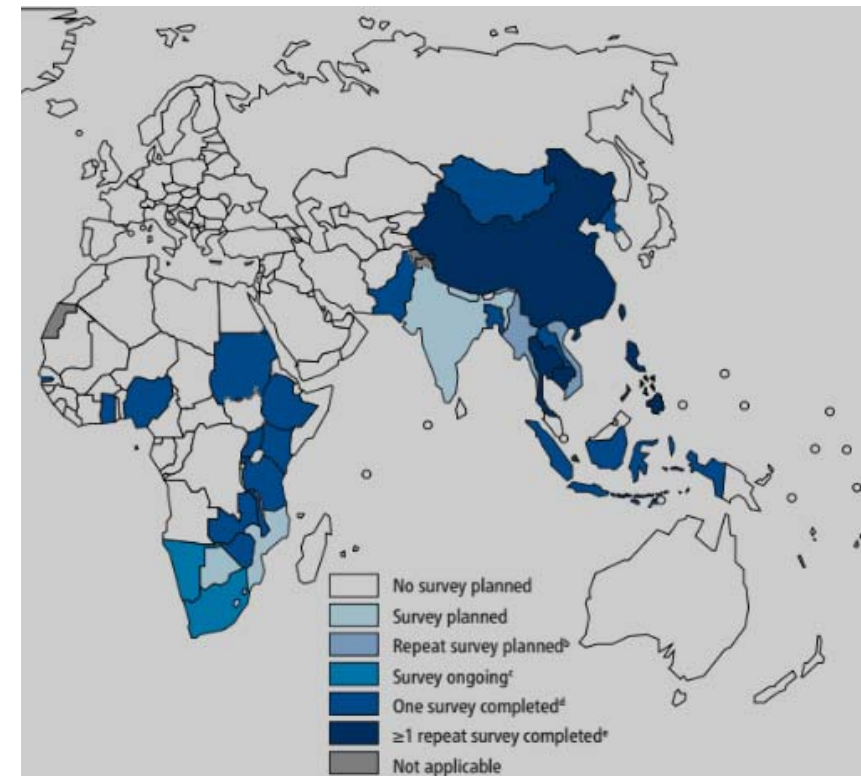
- What is a TB case?
- Coverage of case notifications
 - Reported / Detected: measurable
 - Reported / Incident: very hard to measure
- Mortality data

Mortality data



What do we know about TB incidence?

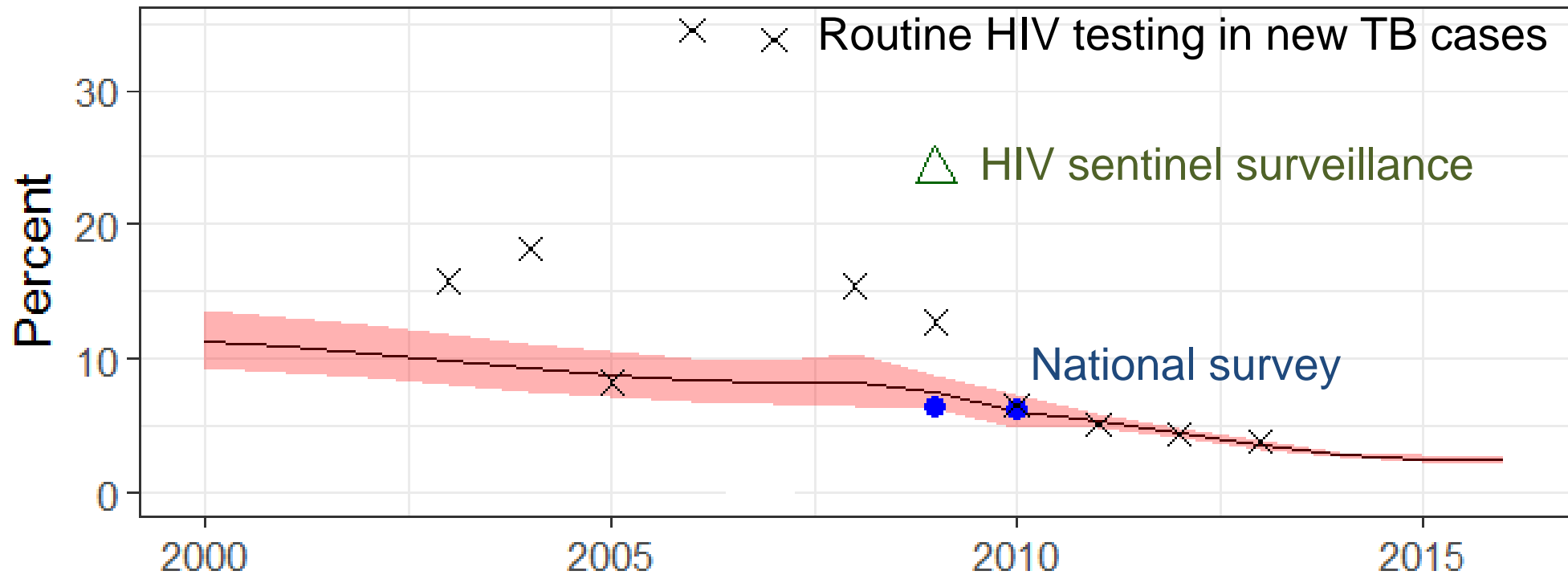
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 - Reported / Detected: measurable
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- Mortality data
- Prevalence surveys: they are very informative but don't measure disease incidence



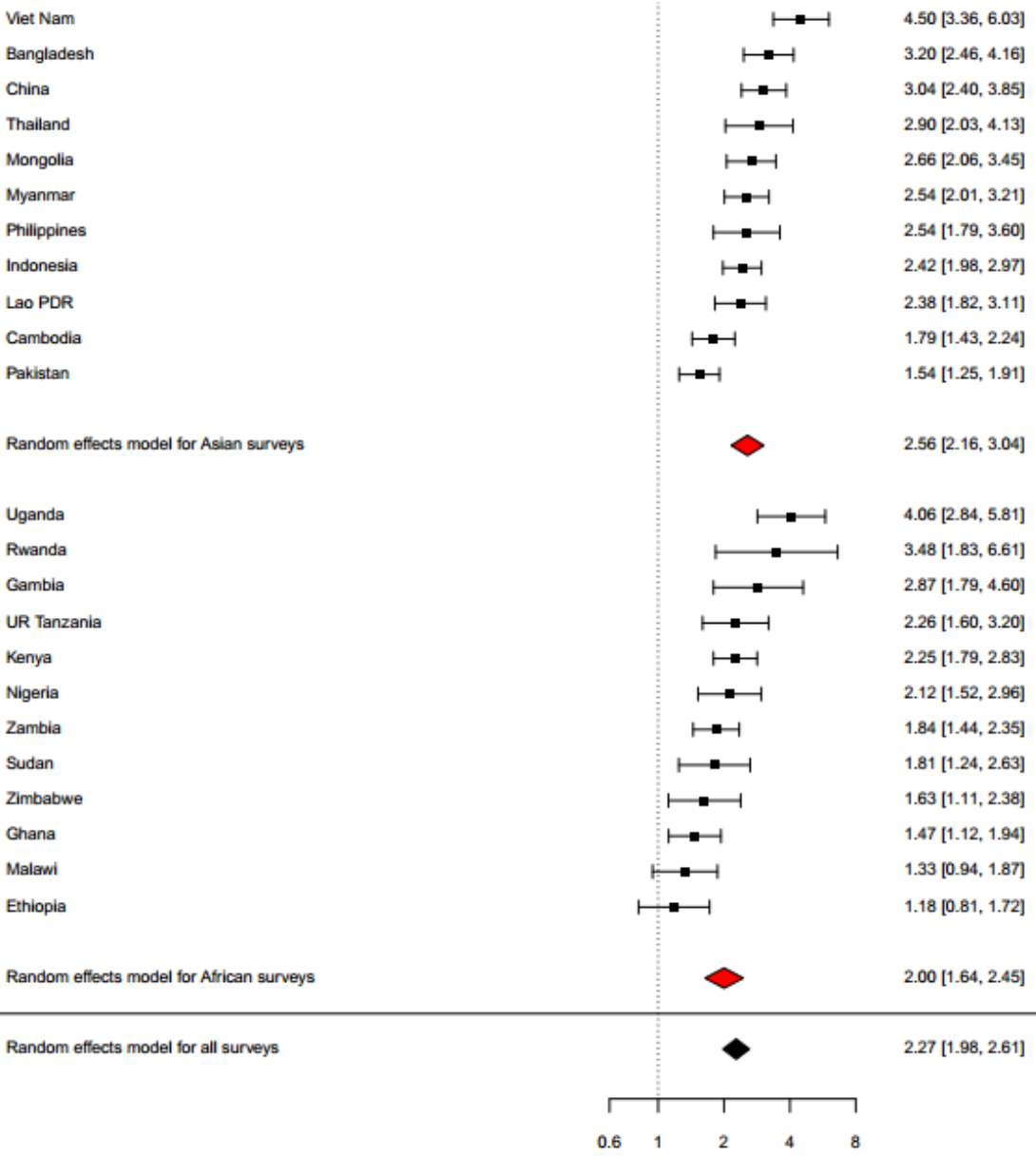
What do we know about TB incidence?

- What is a TB case?
- Coverage of case notifications
 - Reported / Detected: measurable
 - Reported / Incident: very hard to measure
- Mortality data
- Prevalence surveys: they don't measure disease incidence
- Tuberculin surveys: it isn't entirely clear what they are measuring

What is the incidence of HIV+ TB?



How does incidence vary with sex?



Where is the epidemic of MDR/RR-TB headed?

DRS: small error size

$$I_{mdr/rr} = \frac{new \times p_n}{cdr} + \frac{rel \times p_n \times RR + ret_{notrel} \times p_r}{cdr_u}$$

Unmeasured, large error size

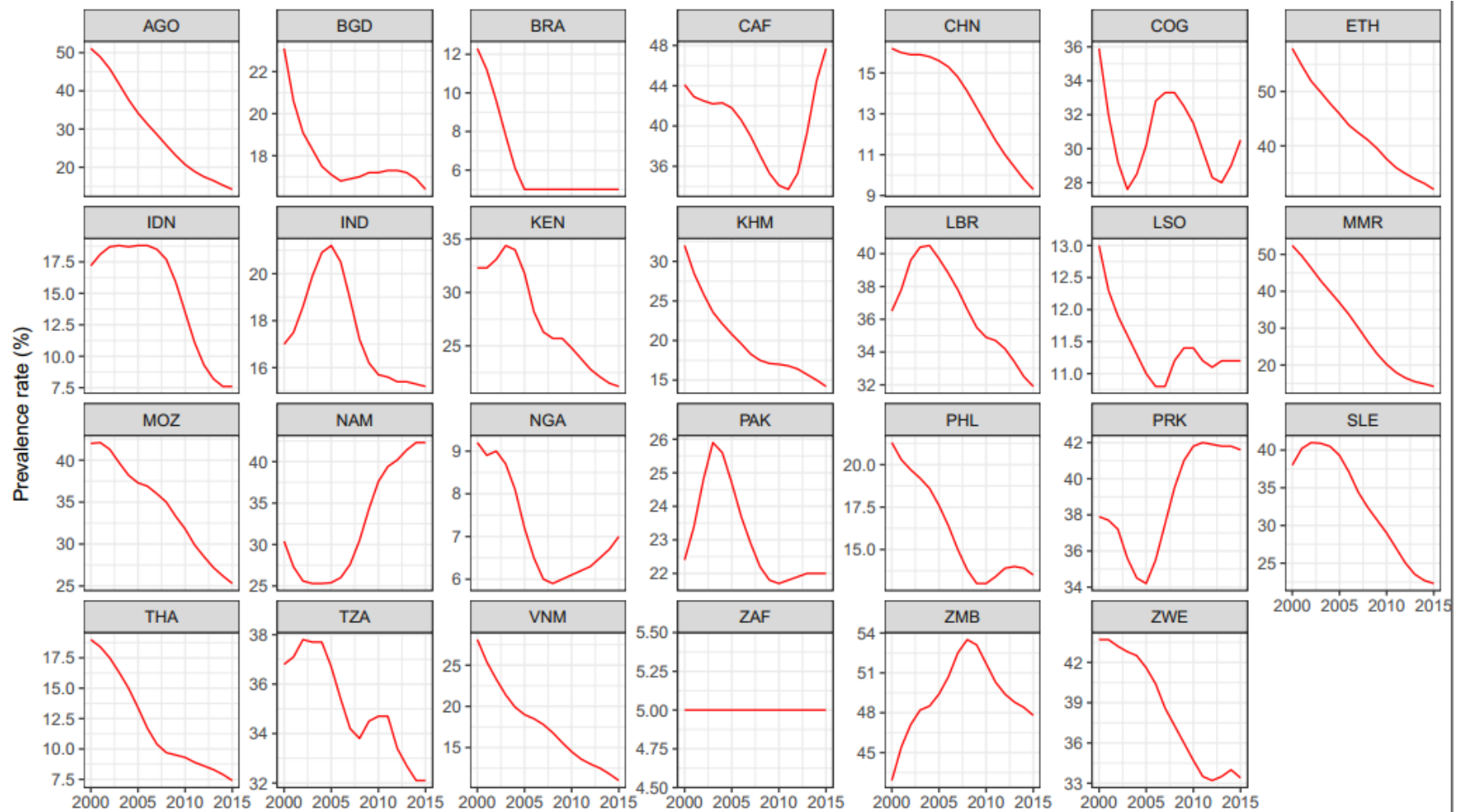
The risk of TB disease is not the same for everyone

Risk factor	Relative risk [^]	Exposed (million in 2015)	PAF* (%)	Attributable TB cases (million in 2015)
Under-nutrition	3.1 – 3.3	734	18	1.9
HIV infection	22	36	9.4	1.0
Cigarette smoking	1.6 – 2.5	1047	7.9	0.83
Diabetes	2.3 – 4.3	460	7.5	0.79
Alcohol abuse	1.9 – 4.6	407	4.7	0.49

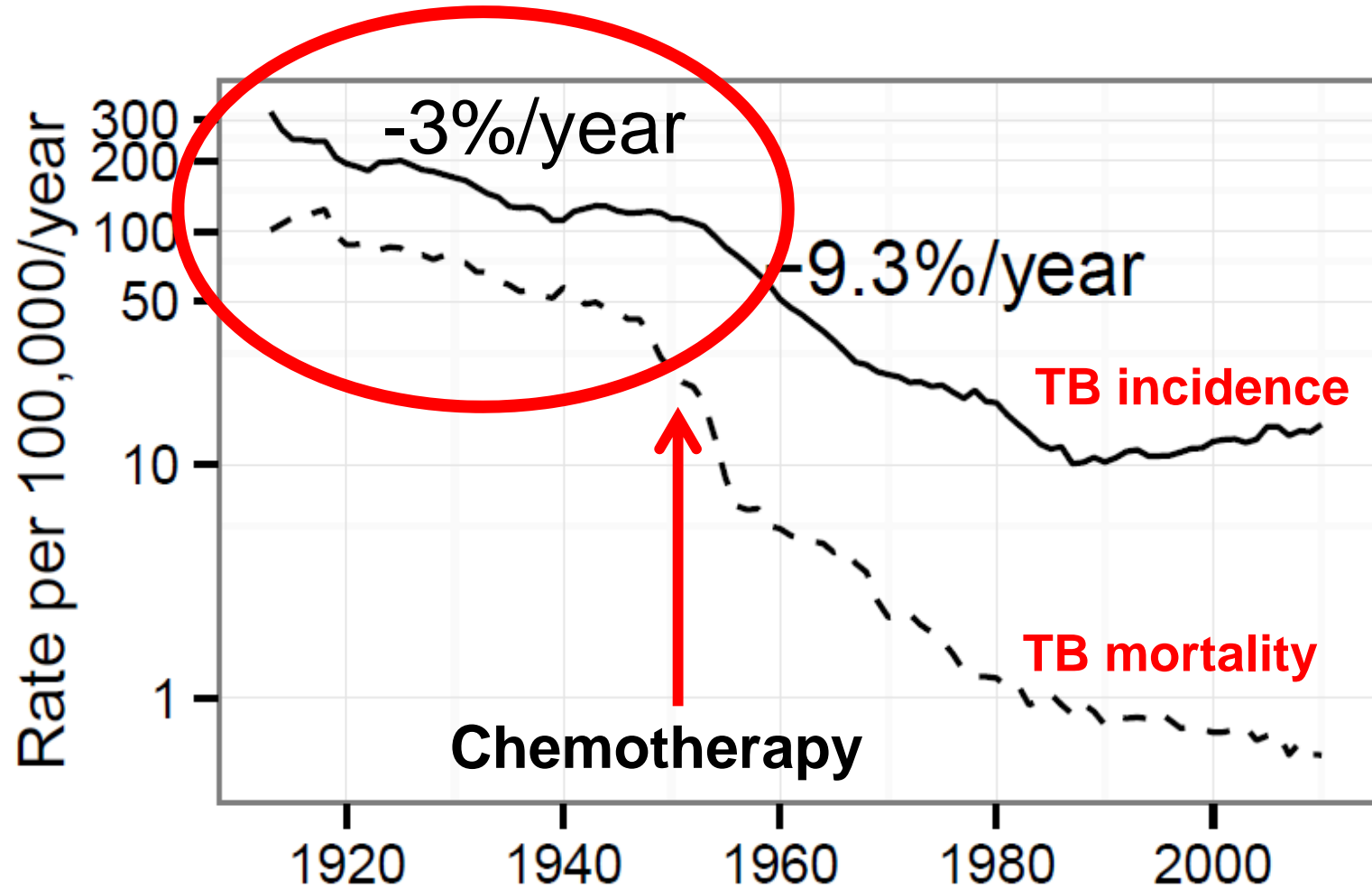
[^]Lancet 2010;375(9728):1814-29; HIV: WHO Global TB Report 2017 (in press)

*Population Attributable Fraction (global)

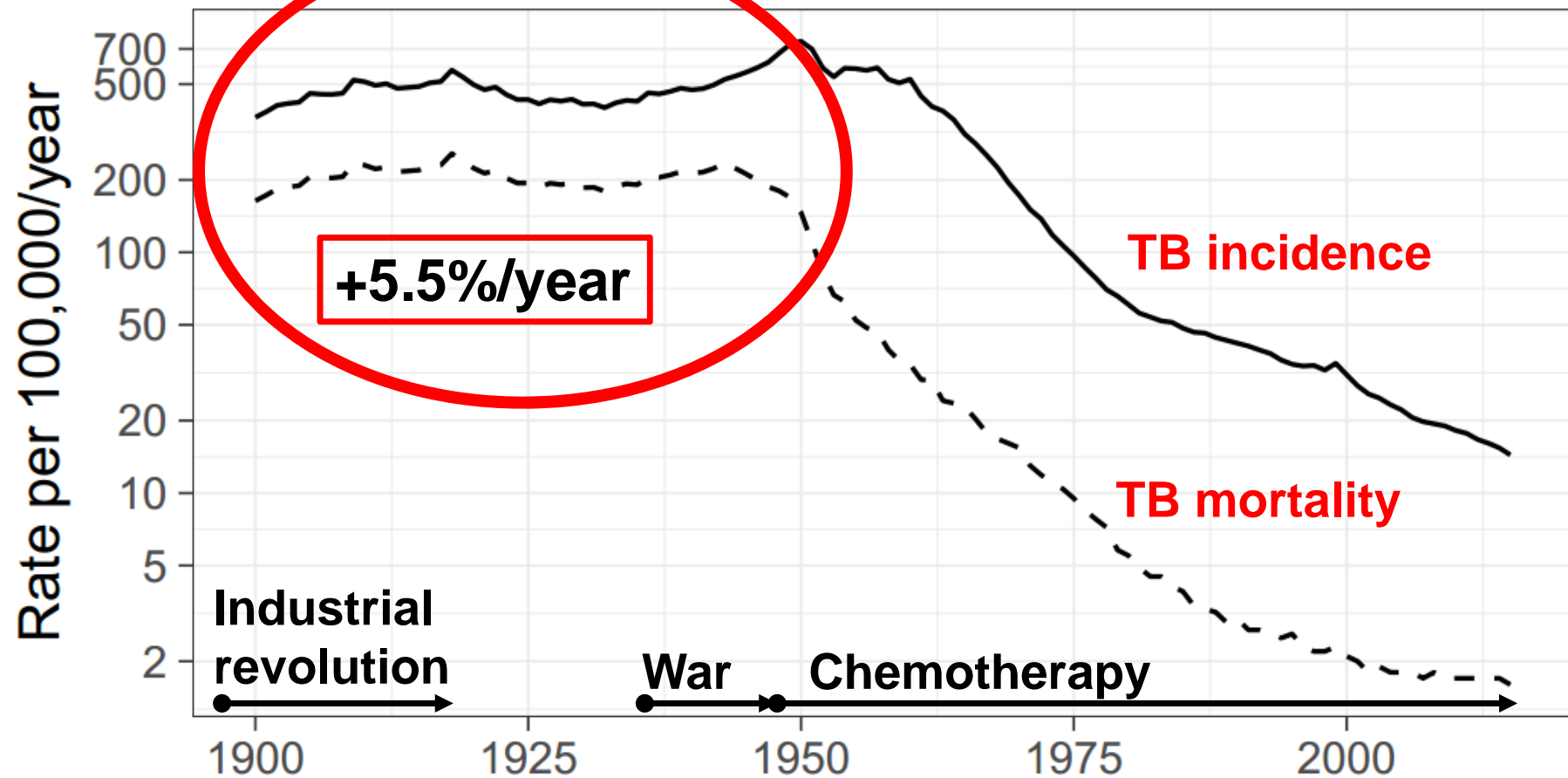
Trends in undernutrition in 30 HBCs



Post-industrialization decline in TB (England and Wales)



Worsening of the TB epidemic during the industrial revolution in Japan



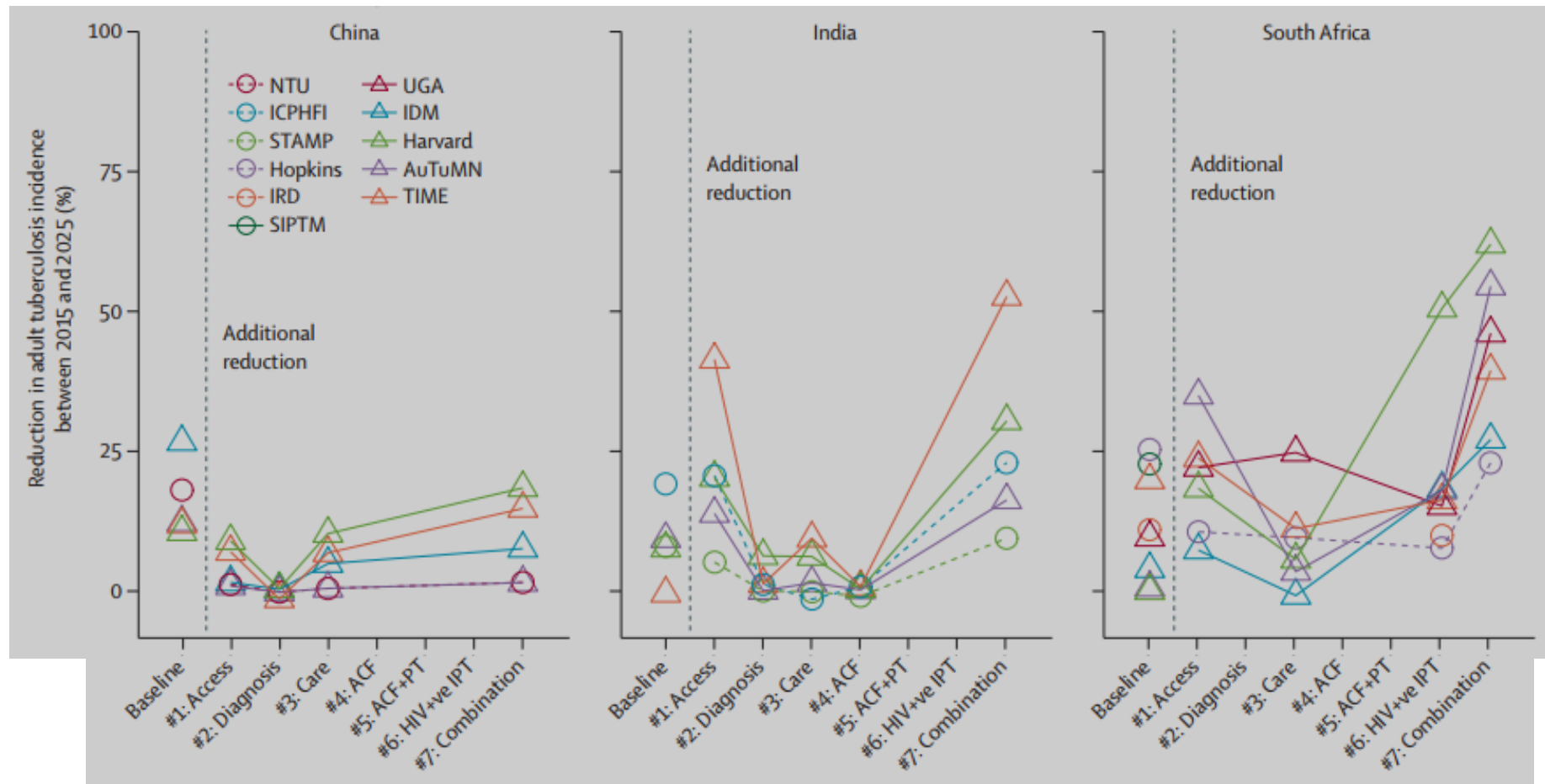
Active case finding impact: is TBMAC more confident than 5 years ago?

No evidence that active case finding decreases mortality or morbidity

Weak evidence that active case finding alone impacts on TB epidemiology

Katarina Kranzer, TBMAC 2012

Planning in China, India and South Africa improved, but...



Houben R et al, Lancet 2016

Data gaps, in conclusion

- TB surveillance
 - Epi reviews, standards and benchmarks
- Cause of death data from national VR
- Research
 - promote large scale multi-country cohort studies?